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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/812,015

03/30/2004

Seung Wan Chae

2336-255

2799

7590

08/23/2006

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EXAMINER

VU, HUNG K

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,015

Applicant(s)

CHAE, SEUNG WAN

Examiner

Hung Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-13, 37, 38, 40 and 41 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-12, 37, 38, 40 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/28/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 2, 4, 5, 7 – 10 and 38 are rejected under 35 U.S.C. 102(a) as being anticipated by Hata et al. (PN 6,649,942, of record).

Hata et al. discloses, as shown in Figure 1-14, a GaN-based semiconductor light emitting diode comprising:

a substrate (1) on which a GaN-based semiconductor material is grown;

a lower clad layer (4) formed on the substrate, and made of a first conductive GaN semiconductor material (n-type);

an active layer (5) formed on a designated portion of the lower clad layer, and made of an undoped GaN semiconductor material;

an upper clad layer (7) formed on the active layer, and made of a second conductive GaN semiconductor material (p-type);

an alloy layer (10a) formed on the upper clad layer, and made of a hydrogen-storing alloy [Col. 25, lines 46-67];

wherein the alloy layer has a thickness of 20Å (within the range of 10 Å to 100 Å) [Col. 6, lines 52-53].

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Regarding claim 2, Hata et al. discloses the alloy layer is made of one hydrogen-storing alloy selected from the group consisting of Mn-based hydrogen-storing alloys, Ln-based hydrogen-storing alloys, Ni-based hydrogen-storing alloys and Mg-based hydrogen-storing alloys [Col. 25, lines 46-67].

Regarding claim 4, Hata et al. discloses the La-based hydrogen-storing alloy is LaNi₅ [Col. 25, lines 46-67].

Regarding claim 5, Hata et al. discloses the Ni-based hydrogen-storing alloy is ZnNi or MgNi [Col. 25, lines 46-67].

Regarding claim 8, Hata et al. discloses the diode further comprising a first metal layer (10b) formed on the alloy layer, and made of a one metal selected from the group consisting of Au, Pt, Ir and Ta [Col. 6, lines 53-55].

Regarding claim 9, Hata et al. discloses the first metal layer has a thickness of 100 Å or less [Col. 6, lines 53-55].

Regarding claim 10, Hata et al. discloses the first metal layer has a thickness the same as or larger than that of the alloy layer.

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Regarding claim 38, Hata et al. discloses the diode further comprising:

a metal layer (10b) on an upper surface of the alloy layer;

an electrode layer (11) on an upper surface of the metal layer;

wherein the electrode layer occupies only a middle region of the upper surface of the metal layer without covering a peripheral region of the upper surface of the metal layer, the peripheral region surrounding the middle region.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6, 11, 12, 37 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al. (PN 6,649,942, of record).

Regarding claims 3, 6, 11, 37 and 40 – 41, Hata et al. discloses all of the claimed limitations except material of the alloy layer or the second metal layer. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device of Hata et al. having the materials as that claimed by Applicant, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 12, Hata et al. discloses a second metal layer (11) has a thickness of 500 Å to 10,000 Å [Col. 6, lines 59-63].

Response to Arguments

3. Applicant's arguments filed 06/09/06 have been fully considered but they are not persuasive.

It is argued, at page 6 of the Remarks, that Hata et al. discloses a Pd film has a thickness of about 2nm, but does not disclose the thickness of hydrogen storage alloy layer. This argument is not convincing because Hata et al. just discloses that other materials, such as hydrogen-storing alloy, can be used in place of Pd, therefore, the thickness of the hydrogen-storing alloy should be the same.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

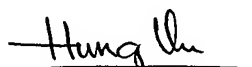
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday to Friday 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272 - 1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vu

August 19, 2006

A handwritten signature in black ink, appearing to read "Hung Vu", is written over a horizontal line.

Hung Vu

Primary Examiner